## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims:**

- 1. (previously presented) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to an RFB4 disulfide-stabilized Fv (dsFv) having a variable heavy chain (V<sub>H</sub>) comprising SEQ ID NO:2 in which a Cys residue is substituted for Arg at position 44; and a variable light chain (V<sub>L</sub>) comprising SEQ ID NO:4 in which a Cys residue is substituted for Gly at position 100.
- . 2. (original) The recombinant immunoconjugate of claim 1, wherein said therapeutic agent is a toxin.
- 3. (original) The recombinant immunoconjugate of claim 2, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.
- 4. (original) The recombinant immunoconjugate of claim 3, wherein said cytotoxic fragment is PE38.

## 5-6. (cancelled)

- 7. (previously presented) The recombinant immunoconjugate of claim 3, wherein said variable heavy (V<sub>H</sub>) chain is covalently linked to the carboxyl terminus of said toxin.
- 8. (currently amended) The recombinant immunoconjugate of claim 5 1, wherein said  $V_L$  chain is covalently linked to said  $V_L$  chain through a linker peptide.
- 9. (currently amended) The recombinant immunoconjugate of claim 5 1, wherein said  $V_H$  chain is linked to said  $V_L$  chain through a cysteine-cysteine disulfide bond.

- 10. (original) The recombinant immunoconjugate of claim 8, wherein said linker peptide has the sequence of SEQ ID NO:5.
- 11. (previously presented) An expression cassette encoding a recombinant immunoconjugate comprising a sequence encoding for a toxin peptide and an RFB4 disulfide-stabilized Fv (dsFv) having a variable heavy chain (V<sub>H</sub>) comprising SEQ ID NO:2 in which a Cys residue is substituted for Arg at position 44; and a variable light chain (V<sub>L</sub>) comprising SEQ ID NO:4 in which a Cys residue is substituted for Gly at position 100.
  - 12. (cancelled).
- 13. (original) The expression cassette of claim 11, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.
- 14. (original) The expression cassette of claim 11, wherein said cytotoxic fragment is PE38.
  - 15. (cancelled)
- 16. (currently amended) The expression cassette of claim 12 11, further comprising a sequence encoding for a linker peptide having the sequence of SEQ ID NO:5.
  - 17. (original) A host cell comprising an expression cassette of claim 11.
  - 18-49. (cancelled)
- 50. (previously presented) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to a recombinant RFB4 disulfide-stabilized Fv (dsFv) antibody having a variable heavy chain (V<sub>H</sub>) with a cysteine at amino acid position 44, which heavy chain comprises the complementarity determining regions (CDRs) of SEQ ID NO:2 and is at least 90% identical to SEQ ID NO:2; and a variable light chain (V<sub>L</sub>) with

a cysteine at amino acid position 100, which light chain comprises the CDRs of SEQ ID NO:4 and is at least 90% identical to SEQ ID NO:4.

- 51. (previously presented) The recombinant immunoconjugate of claim 50, wherein said therapeutic agent is a toxin.
- 52. (previously presented) The recombinant immunoconjugate of claim 51, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.
- 53. (previously presented) The recombinant immunoconjugate of claim 52, wherein said cytotoxic fragment is PE38.
- 54. (currently amended) An expression cassette encoding a recombinant immunoconjugates of claim 51 50.
- 55. (previously presented) A host cell comprising an expression cassette of claim 54.
- 56. (currently amended) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to a recombinant RFB4 disulfide-stabilized Fv (dsFv) antibody having a variable heavy chain (V<sub>H</sub>) with a cysteine at amino acid position 44, which heavy chain comprises the complementarity determining regions (CDRs) of SEQ ID NO:2 and is at least 95% identical to SEQ ID NO:2; and a variable light chain (V<sub>L</sub>) with a cysteine at amino acid position 100, which light chain comprises the CDRs of SEQ ID NO:4 and is at least 95% identical to SEQ ID NO:4.
- 57. (new) A method for inhibiting the growth of a malignant B-cell that expresses a CD22 molecule on the surface of the cell, said method comprising:

contacting said malignant B-cell with an effective amount of a recombinant immunoconjugate comprising a therapeutic agent or a detectable label covalently linked to an RFB4 disulfide-stabilized Fv (dsFv) having a variable heavy chain (V<sub>H</sub>) comprising SEQ ID

NO:2 in which a Cys residue is substituted for Arg at position 44; and a variable light chain (V<sub>L</sub>) comprising SEQ ID NO:4 in which a Cys residue is substituted for Gly at position 100, thereby inhibiting the growth of the malignant B-cell.

- 58. (new) The method of claim 57, wherein said therapeutic agent is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.
  - 59. (new) The method of claim 58, wherein said cytotoxic fragment is PE38.
- 60. (new) The method of claim 58, wherein said variable heavy chain is covalently linked at the carboxyl terminus of said therapeutic agent.
- 61. (new) The method of claim 57, wherein said  $V_H$  chain is covalently linked to said  $V_L$  chain through a linker peptide.
- 62. (new) The method of claim 57, wherein said  $V_H$  chain is linked to said  $V_L$  chain through a cysteine-cysteine disulfide bond.
- 63. (new) The method of claim 61, wherein said linker peptide has the sequence of SEQ ID NO:5.
- 64. (new) The method of claim 57, wherein said malignant B-cell is contacted in vivo.
- 65. (new) The method of claim 57, wherein said malignant B-cell is selected from the group consisting of: a rodent B-cell, a canine B-cell, and a primate B-cell.
- 66. (new) The method of claim 57, wherein said malignant B cell is a chronic lymphocytic leukemia cell.

- 67. (new) The method of claim 57, wherein said malignant B cell is a hairy cell leukemia cell.
- 68. (new) The method of claim 57, wherein said malignant B cell is a prolymphocytic leukemia cell.
- 69. (new) The method of claim 57, wherein said malignant B cell is a B cell lymphoma cell.
- 70. (new) A pharmaceutical composition comprising an effective amount of a recombinant immunoconjugate of claim 1.
- 71. (new) A pharmaceutical composition comprising an effective amount of a recombinant immunoconjugate of claim 50.
- 72. (new) A pharmaceutical composition comprising an effective amount of a recombinant immunoconjugate of claim 56.